

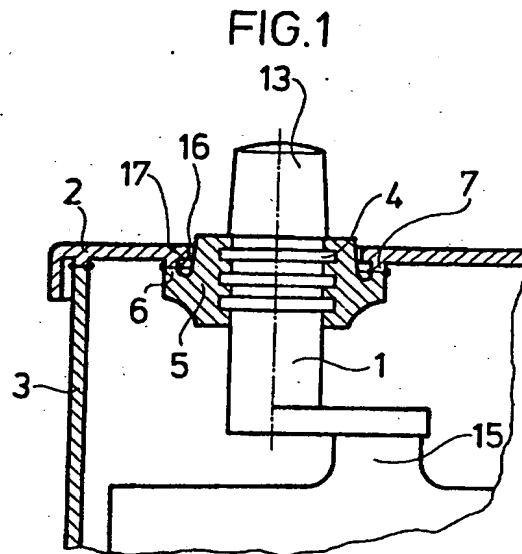
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(54) Accumulator terminal assemblies

(57) An assembly for securing a terminal post (1) in the cover (2) of an accumulator. The terminal post (1) has

a shank with circumferential ribs (4) on to which a collar member (5) is moulded. The member (5) has an upwardly extending neck (6) of annular form by which the member (5) can be welded to a corresponding neck (7) of the cover (2).



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FIG. 1

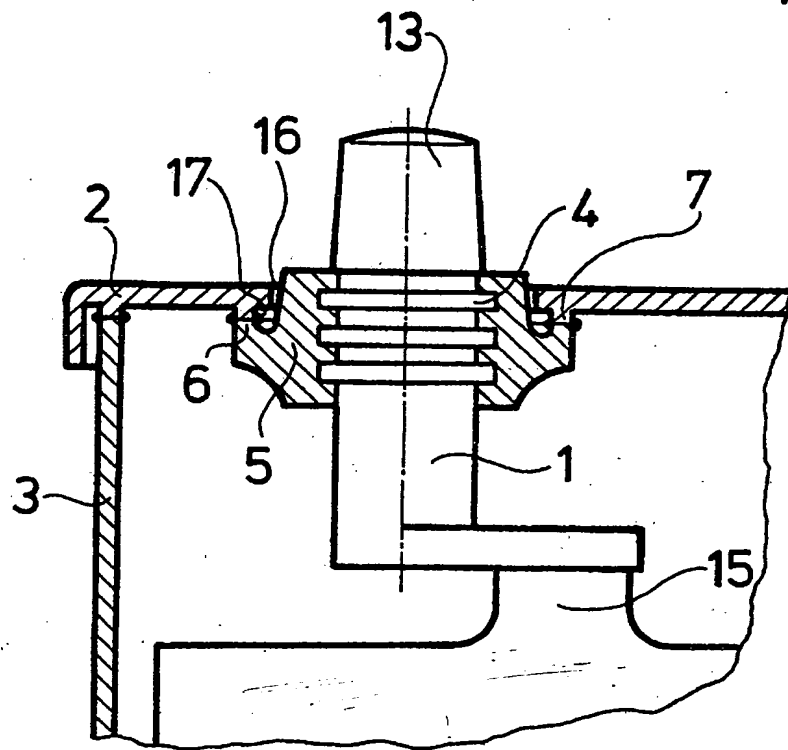


FIG. 2

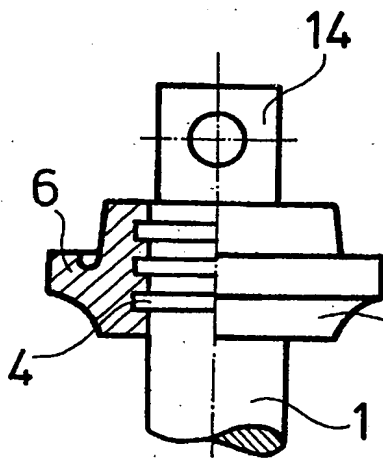


FIG. 3

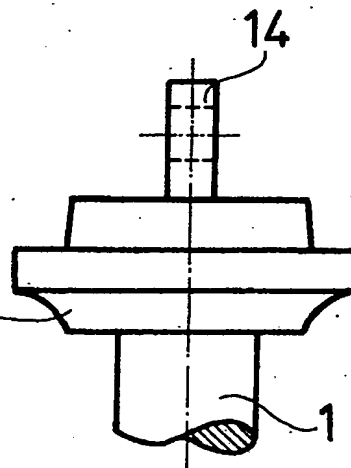


FIG.4

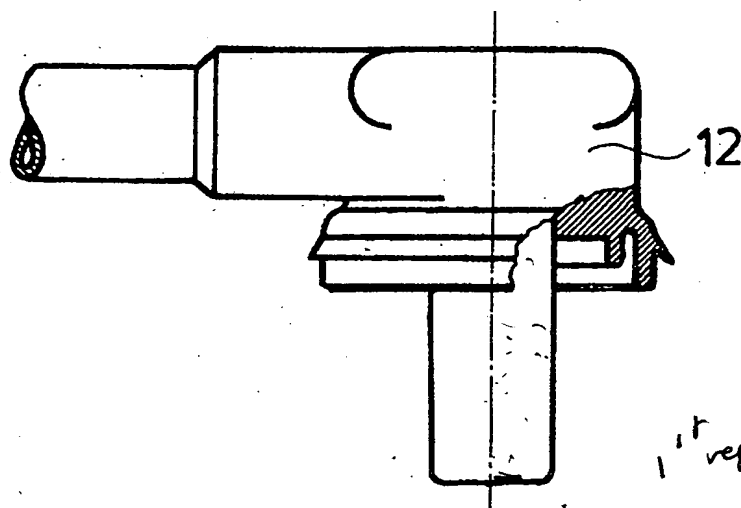


FIG.5

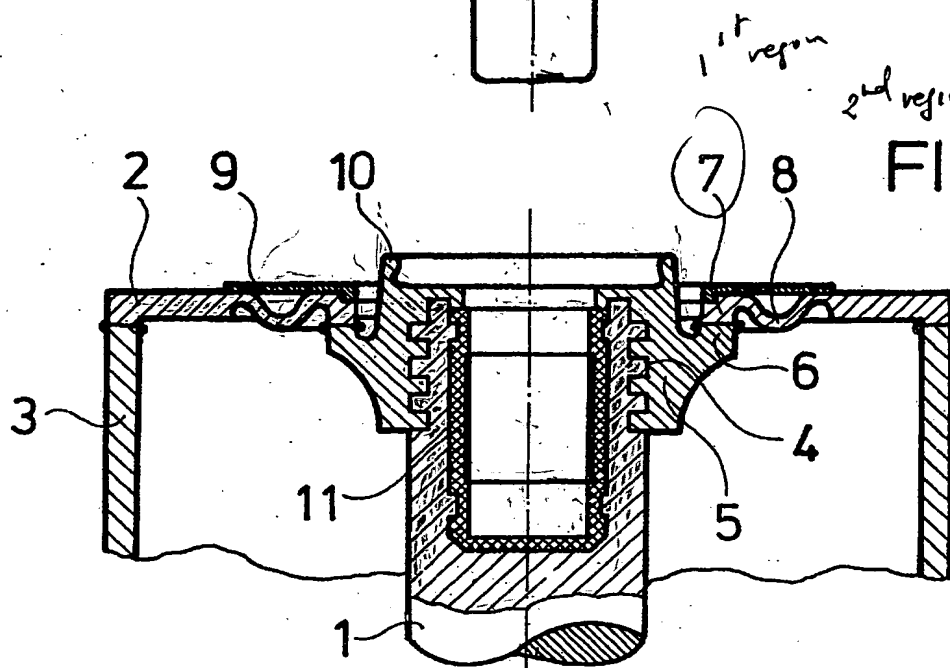
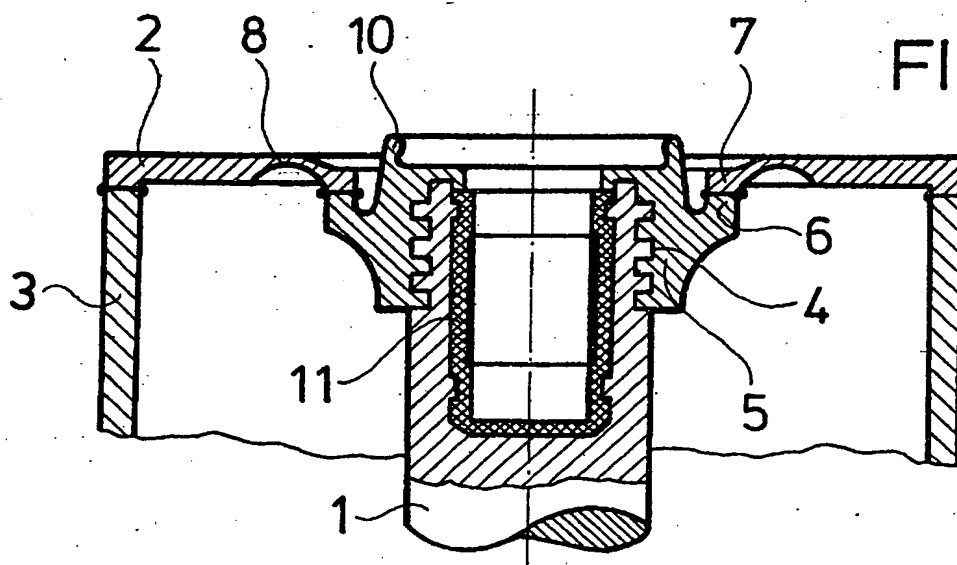


FIG.6



## SPECIFICATION

## Accumulator terminal assemblies

The invention relates to an assembly for leading a terminal post through an opening in the cover of an accumulator, for example a lead/acid accumulator. According to the present invention there is provided an assembly for leading a terminal through an opening in the cover of an accumulator said assembly comprising a cell terminal provided with a shank having spaced annular projections and/or ribs and/or grooves which extend either parallel to each other or of helical form, and a thermoplastics portion moulded around the shank having an upwardly-extending annular welding neck for welding the said portion to a corresponding neck of the cover of the accumulator.

Further according to the present invention there is provided an assembly for securing terminal post in an accumulator casing cover, said assembly comprising a terminal post having a shank, and a plastics portion moulded on to the shank, the engagement between the shank and plastics portion being made positive by parallel grooves and projections or by a helical groove and projection and the plastics portion having a neck by which it can be welded to the casing cover.

Accumulator terminal post assemblies embodying the invention will now be described by way of example with reference to the accompanying diagrammatic drawings in which;

Fig. 1 is a part section through an accumulator cell comprising a terminal post assembly embodying the invention;

Fig. 2 is a part section of a flat terminal post assembly embodying the invention;

Fig. 3 is a side view of the assembly of Figure 2;

Fig. 4 shows a plug type terminal post partly in section;

Fig 5 is a terminal post lead-through assembly for the plug terminal post shown in Figure 4; and

Fig. 6 is a modified embodiment of a terminal post lead-through assembly for a plug terminal post.

The fragmentary view of a lead/acid accumulator cell shown in Figure 1 includes a terminal post 1 welded to a plate lug 15, and projecting from an accumulator casing 3 through an opening 16 in the cell cover 2. The casing 3 and the cover 2 are of thermoplastics material.

The terminal post 1 is provided on the shank with parallel, peripheral, ribs 4, and these ribs engage in complementary grooves in portion 5 moulded around it. The ribs 4 provide both firm, positive engagement with the plastics portion 5 on the terminal post 1, and a very long surface-leakage path for the electrolyte, which ensures both fluid-tightness and mechanical strength.

Although shown as parallel ribs, the projections may alternatively take the form of a single helical rib with several turns. Again, the ribs may be replaced by corresponding recesses on the shank so that ribs are formed on the portion 5.

The portion 5 is provided with an upwardly-

extending annular welding neck 6, which extends exactly to the welding plane between the cover 2 and casing 3, as can be seen in the drawing from the individually indicated welding locations. A degree of flexibility is provided for this joining region by an annular groove 17 formed between the main part of the plastics portion 5 and the welding neck 6.

The opening 16 in the cover 2 is surrounded by a welding neck 7, which is complementary to the welding neck 6 on the plastics portion 5. The two welding necks 6 & 7 come into mutual contact in the welding plane when the cover 2 is laid on the casing 3, so that welding of the cell cover 2 to the cell casing 3 and to the plastics neck 5 can take place simultaneously by welding, for example "mirror" welding (spiegelverschweissung) Figures 2 and 3 show a flat terminal 14, of which the shank within the plastics portion 5 is formed in a manner similar to the corresponding portion of the conical terminal 13 of Figure 1.

A further embodiment of a terminal lead-through assembly is shown in Figure 5. This assembly is generally in the form of a socket suitable for providing a connection with a plug such as shown in Figure 4. In this embodiment, the terminal post 1 comprises a central blind bore, which is lined with an integrally cast contact-sleeve 11. As in the first embodiment the shank part of the terminal post 1 is provided externally with ribs 4, about which a plastics portion 5 is moulded. The plastics portion 5 is provided with an upwardly-extending beaded edge 10 which is arranged to engage an annular, downwardly-facing groove in the plug 12 so that a sealed plug and socket connection can be formed.

In order to improve flexibility in the connection region between the terminal lead-through assembly and the cover 2, the welding neck 7 of the cell cover is joined to the cell cover 2 by way of a flexible annular part 8 of thin thermoplastics material in the corrugated form. The flexible region 8 is covered by a plastics ring 9 mounted thereon. The purpose of the flexible region 8 is to accommodate any displacement of the cell terminal which arises as the positive plates of the accumulator expand.

Alternatively, the flexible connection from the cover 2 to the portion 5 can be, as shown in Figure 6, by way of an annular cover part 8 of reduced thickness provided by the provision of an annular, downwardly-facing, recess of part circular section.

## CLAIMS

1. An assembly for leading a terminal through an opening in the cover of an accumulator said assembly comprising a cell terminal provided with a shank having spaced annular projections and/or ribs and/or grooves which extend either parallel to each other or of helical form, and a thermoplastics portion moulded around the shank having an upwardly-extending annular welding neck for welding the said portion to a corresponding neck of the cover of the accumulator.

2. An assembly as claimed in claim 1, wherein an annular groove is formed in the thermoplastics portion between the welding neck and the main part thereof.
- 5 3. An accumulator incorporating an assembly according to claim 1 or claim 2 comprising an annular welding neck formed on the lower side of the cover of the accumulator casing to correspond with the welding neck on the said thermoplastics
- 10 portion.
4. An accumulator as claimed in claim 3, wherein the cover welding neck is joined to the cover by a flexible annular region.
5. An accumulator as claimed in claim 4,
- 15 wherein the flexible annular region comprises one or more corrugations.
6. An assembly as claimed in claim 1 or claim 2, wherein the plastics portion comprises an upwardly-extending annular beaded edge for
- 20 engagement in a complementary groove of a plug terminal.
7. An assembly for securing terminal post in an accumulator casing cover, said assembly comprising a terminal post having a shank, and a
- 25 plastics portion moulded on to the shank, the engagement between the shank and plastics portion being made positive by parallel grooves and projections or by a helical groove and projection and the plastics portion having a neck by which it can be welded to the casing cover.
- 30 8. An assembly for securing a terminal post in an accumulator casing cover substantially as hereinbefore described with reference to the accompanying drawings.
- 35 9. An accumulator incorporating at least one assembly according to any one of claims 1, 2, 6, 7 or 8.